

WHAT IS CLAIMED IS:

1. A method for coordinating inter-network communications between at least two networks, comprising the step of:
providing a specific mode or sub-mode that defines the behavior of a node common to said at least two networks as being a node shared by said at least two networks.
2. The method of claim 1, wherein the specific mode or sub-mode indicates that said node may skip a scheduled inter-network communication session.
3. The method of claim 2, wherein the specific mode or sub-mode indicates that said node should not be disconnected from said at least two networks even though it has not participated in said scheduled inter-network communication sessions.
4. The method of claim 3, further comprising the step of:
coordinating scheduling of inter-network communications between the at least two networks using a window, a time point, or a random inter-network communication scheduling approach.
5. The method of claim 4, wherein the scheduling of inter-network communications includes the time point approach, and the time point approach includes a flexible start time for a communication session between the at least two networks.
6. The method of claim 5, wherein the flexible start time includes a time point and a meeting window, and the meeting window has a probability of inter-network communication occurring at any particular point in the meeting window.
7. The method of claim 6, wherein said communication session starts during said flexible start time and continues for any length of time depending on the amount of information needed to be exchanged by said two or more networks.

8. The method of claim 7, wherein said time points are distributed over time using an approach selected from: (1) constant communication cycle period length, (2) constant time intervals between time points of different networks, (3) different communication cycle period lengths on different communication links to said node, (4) random spreading of said time points; and (5) next time point scheduled during each of the communication sessions.

9. The method of claim 3, wherein said at least two networks are ad-hoc networks.

10. The method of claim 9, wherein said at least two networks are established using radio communications.

11. The method of claim 10, wherein said at least two networks are established using Bluetooth.

12. The method of claim 11, wherein said networks are piconets, the mode is a JUMP mode and said node is a JUMP node.

13. The method of claim 1, further comprising the step of:
enabling the node to move from being available for communication with a first network to being available for communication with a second network at any time without being disconnected from said first network or said second network as a result of said move.

14. An inter-network communication system, comprising:
a first network;
a second network coupled to the first network;
a node shared by said first network and said second network; and
a specific mode or sub-mode that defines behavior of the node as being shared by the first network and the second network.

15. The system of claim 14, wherein the specific mode or sub-mode indicates that said node may skip a scheduled inter-network communication session.

16. The system of claim 15, wherein the specific mode or sub-mode indicates that said node should not be disconnected from said at least two networks even though it has not participate in said scheduled inter-network communication sessions.

17. The system of claim 16, further comprising:
an inter-network scheduling function that coordinates scheduling of inter-network communications between the at least two networks using a window, a time point, or a random approach.

18. The system of claim 17, wherein the inter-network scheduling function includes the time point approach, and the time point approach includes a flexible start time for a communication session between the first network and the second network.

19. The system of claim 18, wherein the flexible start time includes a time point and a meeting window, and the meeting window has a probability of inter-network communication occurring at any particular point in the meeting window.

20. The system of claim 19, wherein said communication session starts during said flexible start time and continues for any length of time depending on the amount of information needed to be exchanged by the first network and the second network.

21. The system of claim 20, wherein said time points are distributed over time using an approach selected from: (1) constant communication cycle period length, (2) constant time intervals between time points of different networks, (3) different communication cycle period lengths on different communication links to said node, (4) random spreading of said time points; and (5) next time point scheduled during each of the communication sessions.

22. The system of claim 16, wherein the first network and the second network are ad-hoc networks.

23. The system of claim 22, wherein the first network and the second network are each established by using radio communications.

24. The system of claim 23, further comprising:
Bluetooth systems for establishing the first network and the second network communications.

25. The system of claim 24, wherein the first network and the second network are each piconets, the mode is a JUMP mode and the node is a JUMP node.

26. The system of claim 14, wherein the node moves from being available for communication with the first network to being available for communication with the second network at any time without being disconnected from the first network or the second network as a result of the move.

27. In an ad-hoc network comprising a first node which is a participant in a first network and a second network, a method comprising the steps of:
exchanging meeting information between the first node and another node of the first network, wherein the meeting information includes an indication of a time slot;
participating, by the first node, in the second network; and
participating, by the first node, in the first network, wherein the first node participates in the first network during a time period at, earlier than, or later than the time slot.

28. The method of claim 27, wherein the meeting information also includes an indication that the time slot is repeated periodically.

29. The method of claim 27, wherein the first node participates in the second network beyond the time slot and wherein the first node does not return to participating in the first network until the first node has finished a communication in the second network.

30. The method of claim 27, wherein when the first node participates in the second network the first node is in a jump mode.

31. The method of claim 27, wherein when the first node participates in the second network the first node is in an active mode.

32. In an ad-hoc network comprising a first node which is a participant in a first network and a second network, a method comprising the steps of:

exchanging meeting information between the first node and another node of the first network, wherein the meeting information includes an indication of a time point;

participating, by the first node, in the second network; and

participating, by the first node, in the first network, wherein the first node participates in the first network during a time period at, earlier than, or later than the time point, wherein the first node can participate in only one network at a time.

33. In an ad-hoc network comprising a first node which is a participant in a first network and a second network, a method comprising the steps of:

exchanging meeting information between the first node and another node of the first network, wherein the meeting information includes an indication of a time slot;

participating, by the first node, in the second network;

participating, by the first node, in the first network, wherein the first node participates in the first network during a time period earlier or later than the time slot; and

exchanging meeting information between the first node and another node of the second network, wherein the meeting information includes an indication of another time slot, wherein the first node participates with the second network during a time period earlier or later than the another time slot.

34. The method of claim 33, wherein the time slot and the another time slot are selected based upon a number of networks that the first node participates in, such that the first node participates in each of the number of networks for approximately an equal amount of time.

35. The method of claim 34, wherein the time slot and the another time slot are randomly selected such that the node participates in a number of networks for a random amount of time.

36. The method of claim 1, further comprising the step of:
coordinating scheduling of inter-network communications between the at least two networks using a window, a time point, or a random inter-network communication scheduling approach.